

REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Office Action dated February 27, 2004. In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Status of the Claims

Claims 1-12 are under consideration. As outlined above, claims 1, 3 and 6-8 are being amended to correct formal errors and to more particularly point out and distinctly claim the subject invention. New claims 10-12 are being added to recite other embodiments described in the specification.

Additional Amendments

Claims 1, 3 and 6-8 are being amended to correct formal errors and/or to better recite or describe the features of the present invention as claimed. All the amendments to the claim are supported by the specification. Applicants hereby submit that no new matter is being introduced into the application through the submission of this response.

Formality Rejection

Claims 3, 6 and 7 were objected to as being improper multiple dependent claims. As indicated, the claims have been amended as required by the Examiner. Accordingly, the withdrawal of the outstanding informality rejection is in order, and is therefore respectfully solicited.

Prior Art Rejections

Claims 1, 3-4, and 7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. No. 6,101,265 to Bacus et al. (hereinafter “Bacus”) in view of U.S. Pat. No. 5,904,822 to Casavant (hereinafter “Casavant”), and claims 2, 5-6 and 8-9 were rejected as being unpatentable over Bacus, in view of Casavant and further in view of U.S. Pat. No. 6,597,383 to Saito (hereinafter “Saito”). The prior art reference of Ozawa et al. (Pub. No. US

2002/0081092 A1) was cited as being pertinent to the present application. These rejections have been carefully considered, but are most respectfully traversed.

The device for selecting an electrophoresis band of interest from a plurality of bands on an electrophoresis lane 603 of a sample of the invention (e.g., Fig. 6), as now recited in claim 1, comprises: a display unit for displaying an image of the plurality of bands established on the lane; a region setting unit for setting a region 602 on the lane 603 on a screen of the display unit; a region altering unit for altering a coverage size (derived from Fig. 6; “*The [coverage] size of the selection candidate region 602 may be altered As the size of the selection candidate region 602 is altered, the selection candidate region band information 609 also changes [e.g., total of bands: 3, Upper side band: 1 Lower side band:1]. P. 16, last three lines to p. 16”) and a display size (derived from Fig. 16A-B; “*the region 1601 is enlarged in the vertical direction while the position of the cursor 1602 is set at the center*” p. 20, last paragraph) of the region; a selection candidate displaying unit for displaying bands within the region in a selection candidate state (ALL band selection mode Fig. 5); and a band selecting unit for processing the bands in the selection candidate state to be in a selection state.*

The invention recited in claim 4 is directed to device for selecting an electrophoresis band of interest is similar to the one recited in claim 1 except (i) that it displaying one of the bands “(ONE band selection mode Fig. 6),” and that (ii) it replaces “the region altering unit” with “a selection candidate display altering unit for altering the band in the selection candidate state to a band immediately before or after the former band along the lane (Fig. 17; “switching/altering the selected band to a band immediately before or after” p. 21, 1st paragraph).”

The invention is further directed to methods for selecting an electrophoresis band of interest recited in claims 8 and 9 which are implemented by the devices recited in claims 1 and 4.

“By electrophoresis, molecules such as DNA or proteins migrate on a gel by the application of an electric field, thereby being separated and established as bands according to their molecular weights. A range where bands have migrated from the same initial migration point is defined as a lane (p. 1, 2nd paragraph).” “When the band of interest is very close to another band or is in the middle of a group of gathering bands, the band regions overlapping in the image makes it difficult or impossible to designate the band of interest with the pointing unit. (p. 3, 2nd paragraph).” These problems are solved via the system by (1) altering

a coverage size and a display size of the region on an electrophoresis lane (claim 1); or by (2) switching/altering the selected band to a band immediately before or after (claim 4).

Applicants respectfully contend that none of the cited prior art references teaches or suggests such (1) “a region altering unit for altering a coverage size and a display size of the region on an electrophoresis lane” or (2) “a selection candidate display altering unit for altering the band in the selection candidate state to a band immediately before or after the former band along the lane” according to the invention.

In contrast, regarding the (1) feature, Bacus, as relied upon by the Examiner to teach altering a region size, merely reproduces a low magnification image of a region 30 in Fig. 14 into a high magnification image in high magnification screen or window 26 in Fig. 14a (col. 7, lines 39-42), which at most, is equivalent to a display size, but not a coverage size. Bacus does not “alter a coverage size of the region on an electrophoresis lane.” Regarding the (2) feature, Bacus, as relied upon by the Examiner to teach switching/altering the selected band to a band immediately before or after, only repositions a selected *region* (rather than “*band*”) of interest in the macro image to be displayed into a higher magnification micro image (col. 5, lines 11-16). Although the macro image window 24 has rows and columns separated by dotted lines, they do not correspond to the bands and lanes of the present invention in any sense because their system lacks lane data such as shown in Fig. 18 of the present invention.

Casavant was relied upon by the Examiner to teach the general mechanism of “electrophoresis band analysis.” Casavant, however, fails to compensate for Bacus’ deficiencies. Casavant mainly concerns straightening any curved or crooked electrophoresis lanes (col. 2, line 1) in the vertical and horizontal directions (Abstract) by monitoring the size of each band and potential band of the gel image (col. 6, lines 1-3). Casavant does not alter a coverage size or a display size of the region on an electrophoresis lane. Neither does Casavant switch/alter the selected band to a band immediately before or after.

Saito was relied upon by the Examiner to teach pressing a pre-determined key of a keyboard to trigger a particular action. Saito simply inverts image data within a square area surrounding a pointer (Abstract) thereby alternately displaying the square area of different sizes surrounding a pointer (Fig. 10) upon pressing a predetermined key of a keyboard so as to make the position of the pointer stand out (col. 2, lines 1-3). Saito does not alter a coverage size or a display size of the region on an electrophoresis lane upon pressing a predetermined key of a keyboard. Neither does Saito switch/alter the selected band to a band immediately before or after.

In addition, Applicants respectfully contend that the Examiner's reliance upon the "common knowledge and common sense" of one skilled in the art for the allegedly motivation for combining the electrophoresis lane/band in Casavant with the teachings in Bacus or Saito did not fulfill the agency's obligation to cite references to support its conclusions. Instead, the Examiner must provide the specific motivation to combine on the record, such as *statements in the prior art*, to allow accountability.

To establish a prima facie case of obviousness, the Board must, inter alia, show "some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references." In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). "The motivation, suggestion or teaching may come explicitly from statements in the prior art, the knowledge of one of ordinary skill in the art, or, in some cases the nature of the problem to be solved." Kotzab, 217 F.3d at 1370, 55 USPQ2d at 1317. Recently, in In re Lee, 277 F.3d 1338, 61 USPQ2d 1430 (Fed. Cir. 2002), we held that the Board's reliance on "common knowledge and common sense" did not fulfill the agency's obligation to cite references to support its conclusions. Id. at 1344, 61 USPQ2d at 1434. Instead, the Board must document its reasoning on the record to allow accountability. Id. at 1345, 61 USPQ2d at 1435.

See In re Thrift, 298 F.3d 1357.

Such an obligation to provide specific teaching(s) also applies to existing or future obviousness rejections.

Although the invention applies the general mechanisms of "altering a display size of a region" and "repositioning a selected region of interest" as disclosed in Bacus and of "pressing a pre-determined key of a keyboard to trigger a particular action" as disclosed in Saito, the invention applies the mechanisms to "the region/band on an electrophoresis lane", to achieve unexpected results or properties. For example, to designate the band of interest with the pointing unit even when the band of interest is very close to another band or is in the middle of a group of gathering bands (p. 3, 2nd paragraph). The presence of the unexpected properties is evidence of nonobviousness. MPEP§716.02(a).

"Presence of a property not possessed by the prior art is evidence of nonobviousness. In re Papesch, 315 F.2d 381, 137 USPQ 43 (CCPA 1963) (rejection of claims to compound structurally similar to the prior art compound was reversed because claimed compound unexpectedly possessed anti-inflammatory properties not possessed by the prior art compound); Ex parte Thumm, 132 USPQ 66 (Bd. App. 1961) (Appellant showed that the claimed range of ethylene diamine was effective for the purpose of producing "'regenerated cellulose consisting substantially entirely of skin'" whereas the prior art warned "this compound has 'practically no effect.'").

Although “[t]he submission of evidence that a new product possesses unexpected properties does not necessarily require a conclusion that the claimed invention is nonobvious. *In re Payne*, 606 F.2d 303, 203 USPQ 245 (CCPA 1979). See the discussion of latent properties and additional advantages in MPEP § 2145”, the unexpected properties were unknown and non-inherent functions in view of Bacus or Saito, since they do not inherently achieve the same results. In other words, these advantages would not flow naturally from following their teachings, since they fail to suggest applying the mechanisms on “the region/band on an electrophoresis lane” thereby altering a coverage size and a display size of the region.

Applicants further contend that the mere fact that one of skill in the art could apply the general mechanisms on “the region/band on an electrophoresis lane” to meet the terms of the claims is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for one skilled in the art to provide the unexpected properties, such as to designate the band of interest with the pointing unit even when the band of interest is very close to another band or is in the middle of a group of gathering bands, without the benefit of appellant's specification, to make the necessary changes in the reference device. *Ex parte Chicago Rawhide Mfg. Co.*, 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984). MPEP§2144.04 VI C.

Applicants contend that neither the individual references, nor their combinations teaches or discloses each and every feature of the present invention as disclosed in independent claims 1, 4 and 8-9. As such, the present invention as now claimed is distinguishable and thereby allowable over the rejections raised in the Office Action. The withdrawal of the outstanding prior art rejections is in order, and is respectfully solicited.

In view of all the above, clear and distinct differences as discussed exist between the present invention as now claimed and the prior art reference upon which the rejections in the Office Action rely, Applicants respectfully contend that the prior art references cannot anticipate the present invention or render the present invention obvious. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance

of the above-captioned application, the Examiner is invited to contact the Applicants' undersigned representative at the address and phone number indicated below.

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